

MAASTO Regional Truck Parking

Truck Parking Information Management Systems (TPIMS)



Freight Advisory Council
September 14, 2018



IOWA STATE UNIVERSITY
Institute for Transportation



THE PROBLEM

Lack of Adequate Parking for Truck Drivers



ISSUES FOR DRIVERS

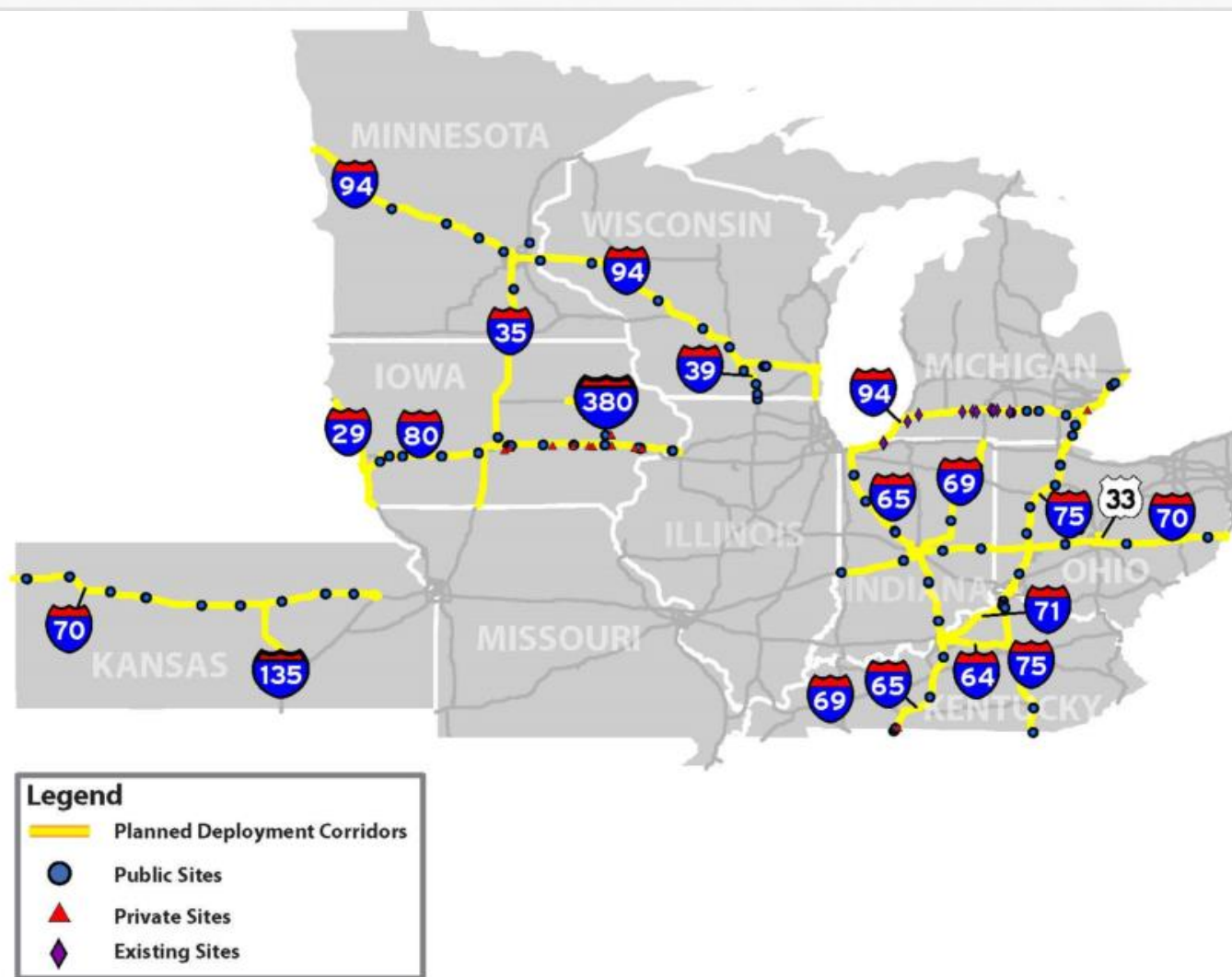
- Driver Hours of Service Limitations - FMCSA
- If rest areas and truck stops are full and a driver's hours are almost up that becomes problematic. Less than desirable options are:
 - Continue to drive past your hours
 - Choose a less than desirable place to park
- Recent survey revealed that 83% of drivers spend greater than 30 minutes searching for parking!!

TIGER GRANT

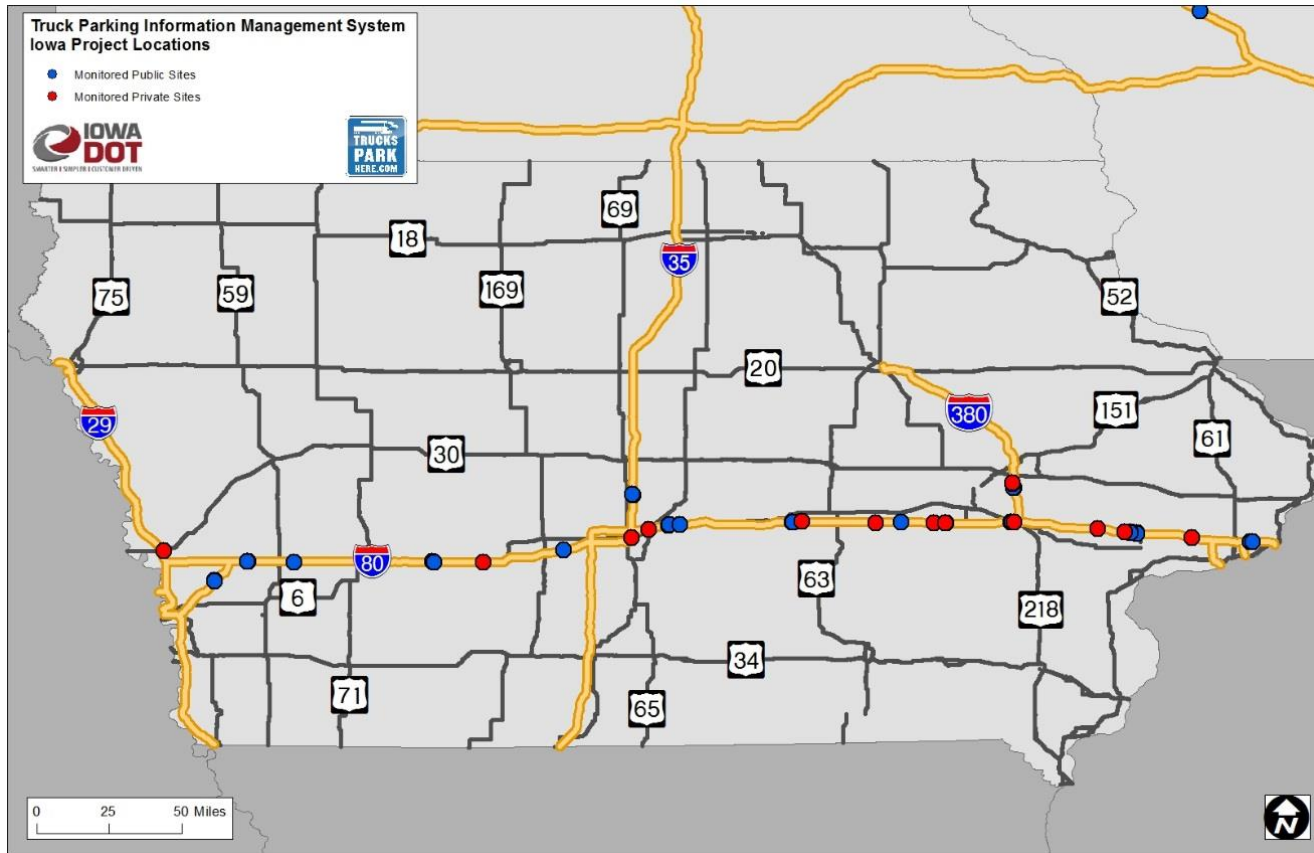
- MAASTO Consortium (8 of 10 States)
 - Missouri and Illinois Opted out
- Applied for TIGER Grant
 - Regional Truck Parking Information and Management Systems
 - Focus on **ITS technology** to provide real-time data on parking availability at Private and Public truck stops and rest areas.
- MAASTO Award for \$25 million
 - Request: Just over \$28.5 million
 - Iowa Federal Share = \$4,362,807
 - Iowa State Contribution = \$498,086



PROJECT EXTENT



IOWA DEPLOYMENT



Iowa TPIMS Sites

Corridor	DOT	Private	Total
I-80	23	11	34
I-29		1	1
I-35	2		
I-235		1	1
I-380	2	2	4
Total	27	15	42

TYPES OF SITES

- Public Rest Areas
- Truck Weigh Stations
- Private Truck Stops
- Prairie Meadows Racetrack and Casino
- Kum&Go Stores
- Casey's General Stores
- Kwik Star
- Taylor Quick Pick
- McDonalds

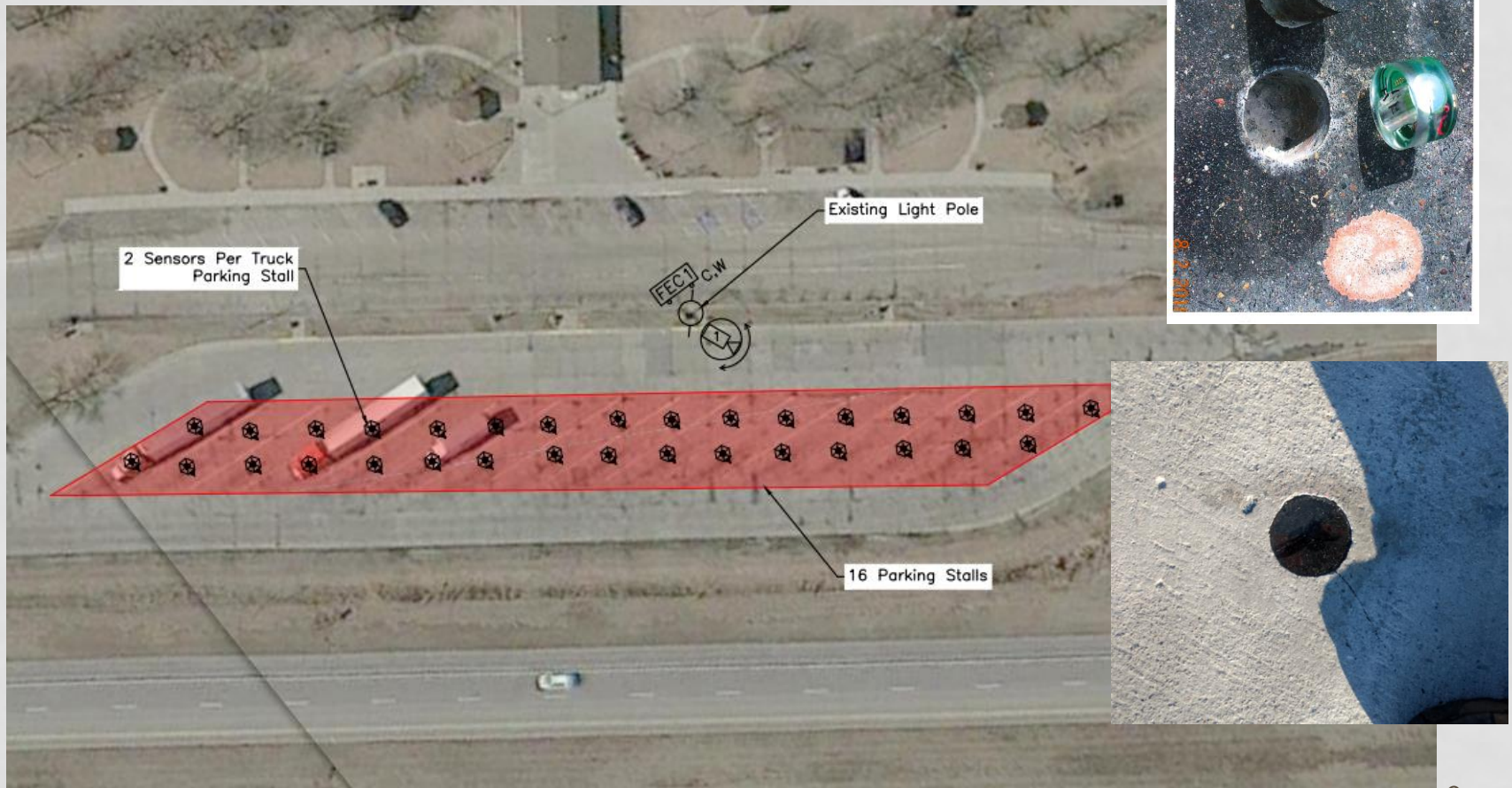
- No participation by most Pilot and Travel America
 - Interest in own reservation system

TECHNOLOGY SOLUTION



TECHNOLOGY SOLUTION

- In-ground Magnetometer Puck



TECHNOLOGY SOLUTION

- Entrance/Exit Counting
- Camera with Built In Video Analytics



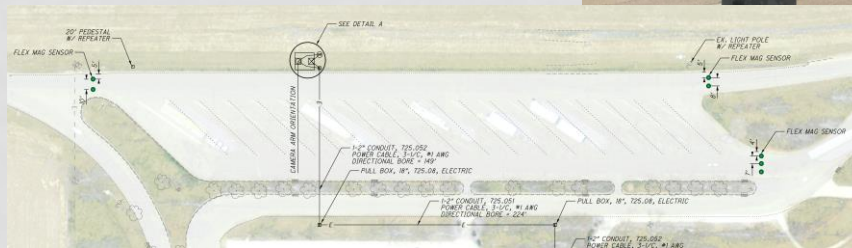
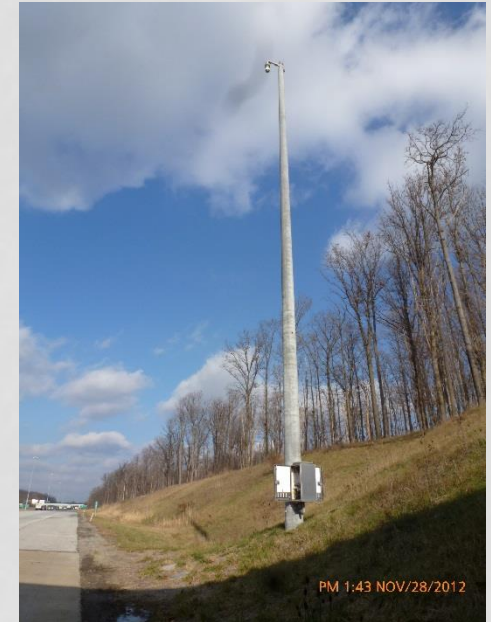
TECHNOLOGY SOLUTION

- System Validation with Fish Eye and Pan/Tilt/Zoom Cameras



CONSTRUCTION SCHEDULE

- **All sites fully constructed by mid-October**



SELF EVALUATION PROCESS

- Contractor individually evaluates all sites are in working order.
- 24-hours of verified data.
- Done remotely with cameras.

Sign Name: <enter site name>

<enter site

Sign ID: ID>

Version 1.0

Form Date: 12/18/16

Available Truck Parking
(Actual #'s on Sign)

5 Minute Period (Time Elapsed)	Operator Initials	Date	Time (Local)	<Destination 1>		<Destination 2>		<Destination 3>		Notes: Document any Variants or Anomalies
				Enter Availability # from System	Confirm the # Shown on DTPS Matches the System	Enter Availability # from System	Confirm the # Shown on DTPS Matches the System	Enter Availability # from System	Confirm the # Shown on DTPS Matches the System	
Example	CAM	mo/day/year	12:02 AM	20	Yes	34	No	5	Yes	
1 (5 min)					Yes or No		Yes or No		Yes or No	
2 (10 min)					Yes or No		Yes or No		Yes or No	
3 (15 min)					Yes or No		Yes or No		Yes or No	
4 (20 min)					Yes or No		Yes or No		Yes or No	
5 (25 min)					Yes or No		Yes or No		Yes or No	
6 (30 min)					Yes or No		Yes or No		Yes or No	
7 (35 min)					Yes or No		Yes or No		Yes or No	
8 (40 min)					Yes or No		Yes or No		Yes or No	
9 (45 min)					Yes or No		Yes or No		Yes or No	
10 (50 min)					Yes or No		Yes or No		Yes or No	
11 (55 min)					Yes or No		Yes or No		Yes or No	
12 (60 min)					Yes or No		Yes or No		Yes or No	

BURN IN PERIOD

- Entire System Evaluation
- 60 Day Review Period Nov- Dec
- 30 Days Documentation
- Require 7 Consecutive Days of Data

Site Name: <enter site name>
 Site ID: <enter site ID>
 Number of Truck Parking Spaces in Parking Lot 30

Version 1.0
 Form Date: 12/15/16

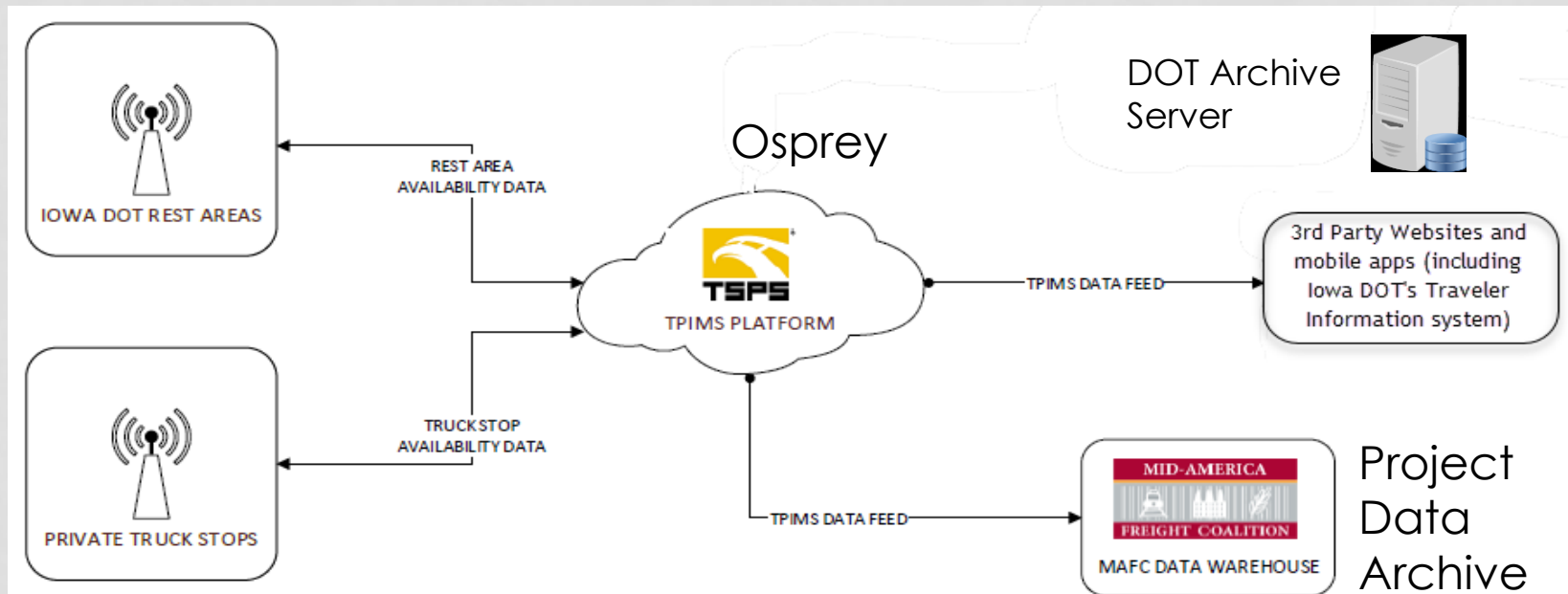
Truck Parking Availability (TPIMS Data)										CCTV Cameras		Associated DTPS 1		Associated DTPS 2		Associated DTPS 3		Associated DTPS 4		Notes: Document any Variants or Anomalies	
Burn-In Day	Operator Initials	Date	Time (Local)	Availability (TPIMS Data Feed)	Trucks Counted (Manual)	Calculated Availability	Date (%)	Manual Read Performed	CCTV Stream Providing Quality Video	CCTV FTS Functioning (If Applicable)	<DTPS Name> <DTPS ID>		<DTPS Name> <DTPS ID>		<DTPS Name> <DTPS ID>		<DTPS Name> <DTPS ID>				
											Communications	Verify Availability on Sign (BASIC Manual Read)	Verify Availability on Sign (JAT Sign Manual Read)	Communications	Verify Availability on Sign (BASIC Manual Read)	Verify Availability on Sign (JAT Sign Manual Read)	Communications	Verify Availability on Sign (BASIC Manual Read)	Verify Availability on Sign (JAT Sign Manual Read)		
											Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass		Fail
Example	CMH	12/15/2016	11:32 AM	27	10	33	-100.0%	Yes	No	Yes	Pass	Yes	Yes	Pass	Yes	Yes	Pass	Yes	Yes	Yes	Yes
1						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
2						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
3						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
4						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
5						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
6						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
7						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
8						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
9						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
10						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
11						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
12						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
13						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
14						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
15						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
16						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
17						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
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20						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
21						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
22						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
23						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
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25						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
26						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
27						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
28						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
29						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No
30						33	-100.0%	Yes or No	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Pass or Fail	Yes or No	Yes or No	Yes or No	Yes or No

SYSTEM OPERATION

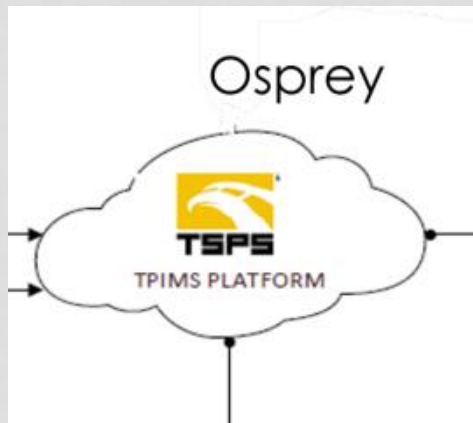
- **Go Live = January 4, 2019**
- **Runs for 3 years per Grant Requirements**



INFORMATION DISSEMINATION



511 TRAVELER WEBSITE



TRAVELER INFORMATION
CALL 511 OR 800-288-1047

TRAVELERS
Traffic events, speeds, cameras, winter road conditions

TRUCKERS
Trucker-focused traveler information

511 ON THE GO
511 easily viewed on mobile devices


JOIN THE CONVERSATION
Connect with us on Facebook or Twitter.

TRACKAPLOW

CALL 511 OR 800-288-1047

The screenshot shows the 511 TRAVELER WEBSITE interface. It features a header with the title 'TRAVELER INFORMATION' and the phone number 'CALL 511 OR 800-288-1047'. The main content is organized into four colored panels: blue for 'TRAVELERS', orange for 'TRUCKERS', green for '511 ON THE GO', and yellow for 'JOIN THE CONVERSATION'. Each panel contains links to 'FULL FEATURED' and 'STREAMLINED' versions of the information, with 'HIGH-SPEED INTERNET' and 'SLOWER INTERNET' labels. The '511 ON THE GO' panel includes icons for downloading the 511 smartphone app for iPhone and Android, and viewing the text-based version with cameras. The 'JOIN THE CONVERSATION' panel features Facebook and Twitter social media icons. At the bottom, there is a 'TRACKAPLOW' banner and a note that some reports are contributed by Waze.

511 TRAVELER WEBSITE









Big Spunk Parking Area, Eastbound on I-94 at Exit 153

OPEN - 10 of 18 Spaces Available




Last Updated: Today at 9:34am

Hours of Operation
24/7

Amenities

Additional Information
Total Truck Parking Spaces: 18



Last Updated: Today at 10:21am

If you see something, say something. Please report any illegal activity.

Nearby driving conditions

I-94: Normal driving conditions.
Between the US 71 (Sauk Centre) and US 10 (St Cloud)
Driving conditions are normal.

Last updated: Today at 9:47pm

Looking for the next parking area?
Endfield parking area is 32 miles from here
on I-94 EB at Exit 183

OPEN - 5 of 18 Spaces Available

Last Updated: Today at 9:34am


[Do you see incorrect information? Let us know about it.](#)

Pictures available for Public Rest Areas Only

511 TRAVELER WEBSITE

Privately Operated ⓘ
Kum & Go Parking area, at Exit 11

OPEN - 9 of 12 Spaces Available



Parking availability
Based on trending parking occupancy this location is becoming hot destination and spaces are filling.

Additional Information
Exit Number: 11
Total Truck Parking Spaces: 12

Nearby driving conditions
I-235: Roadway is partially covered with snow. Between Exit 122: I-80 (West Des Moines) and I-35 (Ankeny). The roadway is partially covered with snow.
Last updated: Today at 9:47pm

Looking for the next parking area?
Mitchellville Rest Area - 12.6 miles

I-80 Eastbound	I-80 Westbound
OPEN	OPEN
19 - 22 Spaces	14 of 24 Spaces

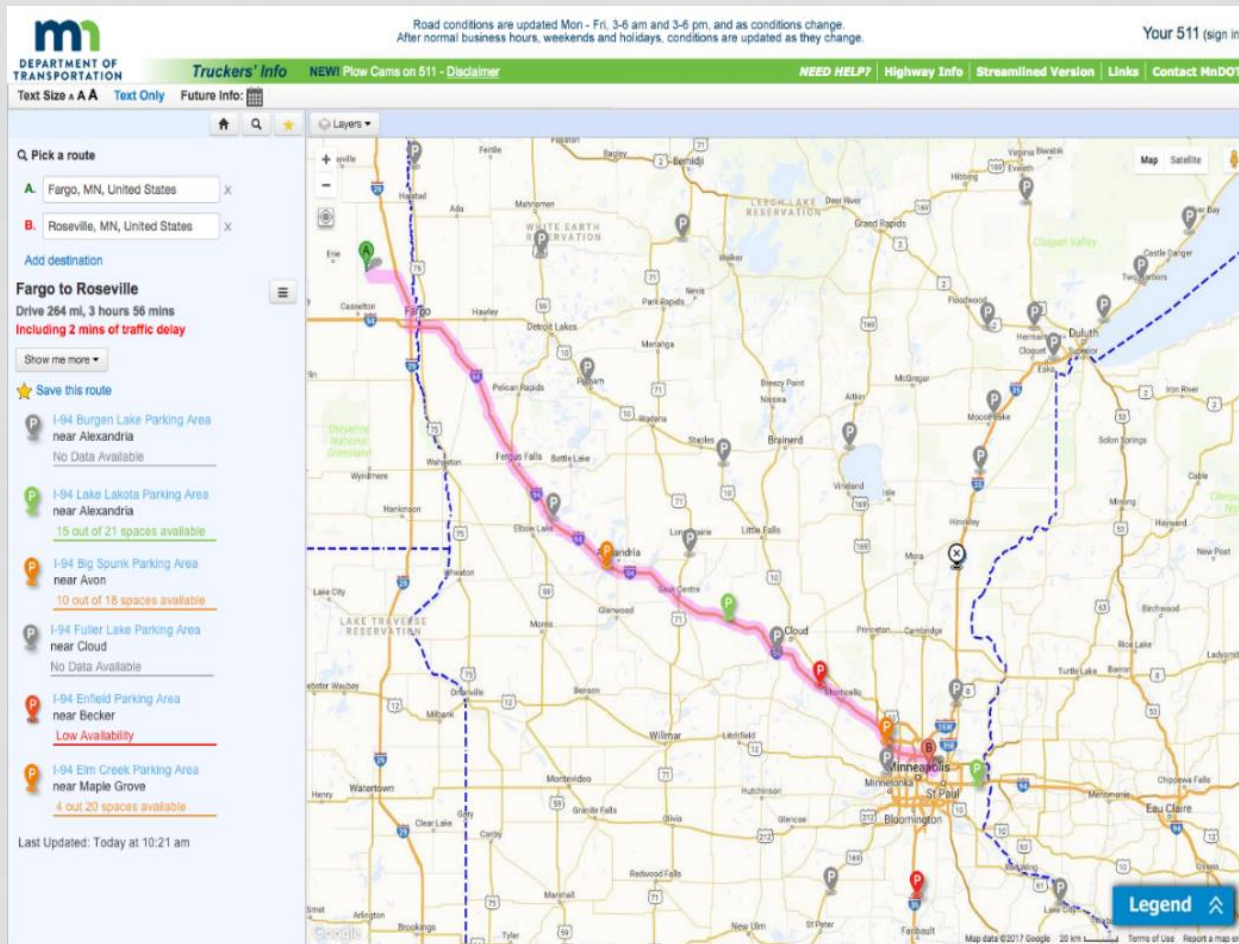
[Do you see incorrect information? Let us know about it.](#) ⓘ

Last Updated: Today at 10:21am

If you see something, say something. Please report any illegal activity.






Traveler Information
Integration: Privately Owned
Truck Stops (no pictures due to
privacy considerations)

511 MAP EXAMPLE

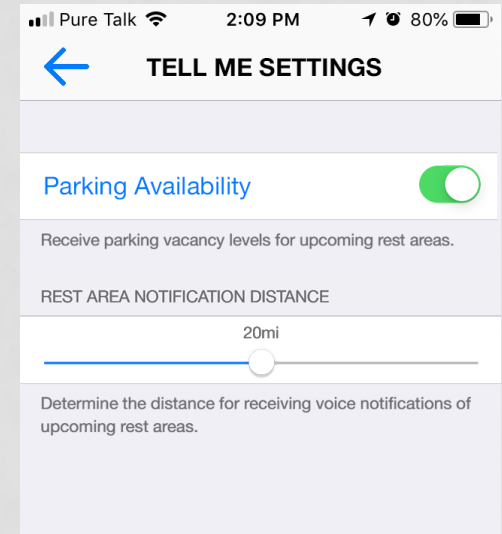
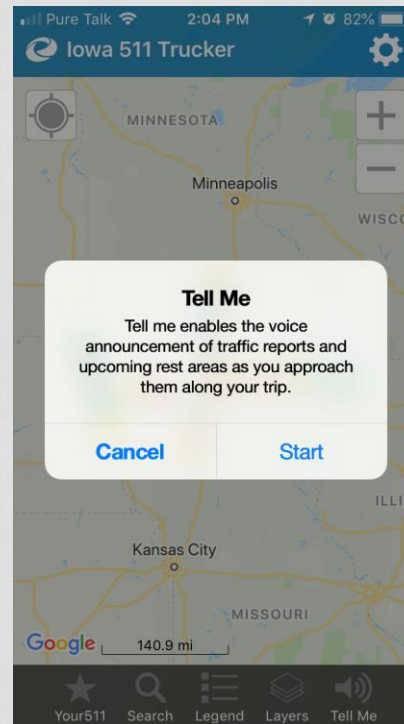
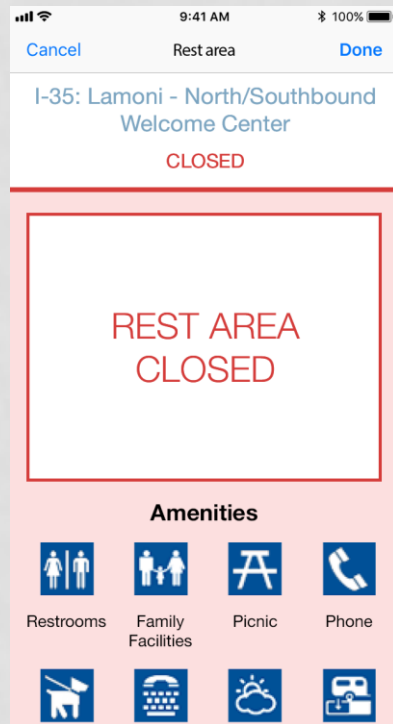
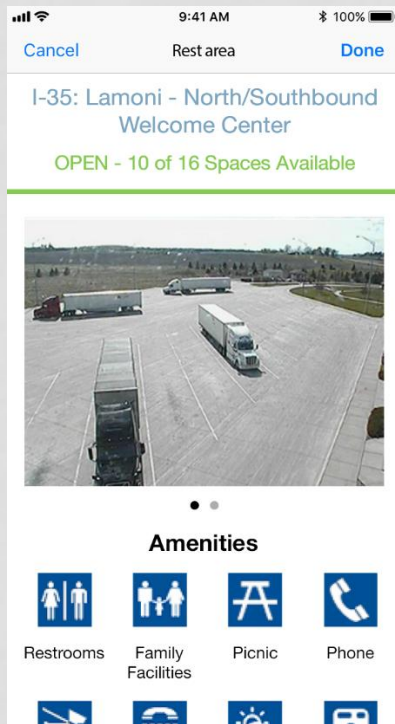


Traveler Information
Integration: Main 511
map (MnDOT example)
showing parking
availability along a
personalized route

511 MAP EXAMPLE

Icon	Meaning	Configuration
	Open	Parking area is 0-70% full OR at least 5 available spaces
	Open, but busy	TPIMS feed ≠ LOW Parking area is 70-95% full AND Only 4 spaces available
	Low Availability	TPIMS feed = LOW OR (Less than 5% of capacity remains open OR 0-3 spots are available) <i>CARS-Park shall never report a site as "Full." Instead, it shall always use the phrase "Low Availability."</i>
	Closed	If the site is closed either per TPIMS data or the Rest Area Update tool, the Closed icon shall be displayed.
	No real-time data	Real-time data for parking area isn't currently available; only static information is available. <i>This shall also be used if a "null" value is returned in the TPIMS Open data element.</i>

MOBILE APP PROTOTYPE



QUESTIONS?

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Office of Systems Planning

Travel Modeling, Forecasting & Telemetrics

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